Summary of Student Feedback
April 2012 SPICE Class at ESA/ESAC near Madrid, Spain
Approximately 36 students

• Topics suggested by NAIF for student comment appear in **bold** font.
• In some cases students gave a numeric rating: "x/y" meaning x out of y, while other students provided textual comments as shown.

Missing core functionality
Python interface.
With regard to a digital shape kernel for an asteroid, provide a single, high-level interface that shows if a point on the asteroid is visible to an observer, or if it is instead occulted by another part of the asteroid.
Digital shape kernels defined in terms of spherical harmonics. (Some asteroid shapes are already available as spherical harmonics data.)
Predict SPK tool; especially making an SPK from Keplerian elements for satellites of planets outside our solar system.
Tool to create a meta-kernel in an automatic way.

Additional kinds of data to be handled
Gravity coefficients (those used by NAV teams).
Rough shape model for spacecraft.
Star catalog, to support stellar occultations.
Radiation data.
Check out the DATIT database of asteroid shape models, for 200+ asteroids. 100K expected after …???

Interfaces to SPICE data
9/10.
Consider implementing a way to access kernel using the FTP protocol inside meta-kernels.
Means to avoid module name conflicts with other libraries or user's code.
Good–the MATLAB interface worked well.

Complexity of using SPICE components
5/5.
8/10.
Managing kernels is tricky; anything to improve this would be useful.
The most difficult part is to know which kernels you need to use.

Code documentation (headers)
Very clear, and especially helpful are the code examples.
5/5.
8/10.
Really helpful, especially for a beginner.
APIs are really good.

Great.

Reference documents ("Required Reading")
Very clear and complete.
5/5.
10/10.
Useful.
Consider constructing a list showing which of these are most important for beginners (somewhat like "Most Used Subroutines").

Access to SPICE software
Easy and clear.
5/5.
9/10.
Easy (using http and ftp)

Access to generic (mission independent) kernels
5/5.
9/10.
Easy, but they are really heavy files.

Access to mission kernels
Easy to find once "how to" has been explained.
3/5.
9/10.
Easy.

Meta-data for kernels
8/10.
Ok.

WebGeocalc (browser/GUI interface to SPICE)
8/10.
Really interesting. If you do this please consider developing web source in the form of Virtual Observatory so a user could dialogue with WebGeocalc from a piece of code. This includes using XML instead of ASCII. (And note that VO provides many useful routines to plot and convert data.)

Class tutorials

Very nice. Particularly liked Sam's versions.
The most important part of the class.
Very productive and clear.
Excellent.
5/5.
10/10.
Useful, but better if contained more figures.
Increase the size of the font size used to label plots, and even some of the viewgraph bullets.
Would be nice to have a code example, with data, at the end of each tutorial.
Would be nice to have more graphical representations of frames, as opposed to purely textual descriptions.

Training (this class)

Not enough time allowed for programming examples.
Generally fine, but sometimes difficult to understand (in absence of previous knowledge).
Excellent.
5/5.
10/10.
Really good.
Content good; lessons are very useful. Lessons are a mix of simple and too hard, but in general the class does a good job of dealing with a variety of levels.
Simply reading what is written on viewgraphs is not very helpful.
Should include a code creation lesson.

Customer support

10/10.

Other topics

Had trouble understanding how to make meta-kernels (FURNSH kernels).
Congratulations for making SPICE accessible to everyone.
Suggest providing a "kernel creation" lesson.
Thanks for the class.
Include time for coffee breaks in the agenda.